

Quality Report on EU-SILC 2009

- Final Report –
Germany

Table of Contents

1.	Common longitudinal European Union indicators	3
2.	Accuracy	3
2.1.	Sample design	3
2.2.	Sampling errors	18
2.3.	Non-sampling errors	27
2.4.	Mode of data collection	44
2.5.	Imputation procedure	46
2.6.	Imputed rent	47
2.7.	Company Cars	47
3.	Comparability	47
3.1.	Basic concepts and definitions	47
3.2.	Components of income	48
3.3.	Tracing rules	49
4.	Coherence	49

1. Common cross-sectional European Union indicators

Tessi020 Persistent at-risk-of-poverty rate by gender and age in %	
Total	8,0
M	7,0
F	9,0
Tessi022 Persistent at-risk-of-poverty rate by age in %	
less than 18 years	5,4
from 18 to 24 years	4,6
From 18 to 65 years	7,3
65 years or over	12,1

2. Accuracy

2.1. Sample design

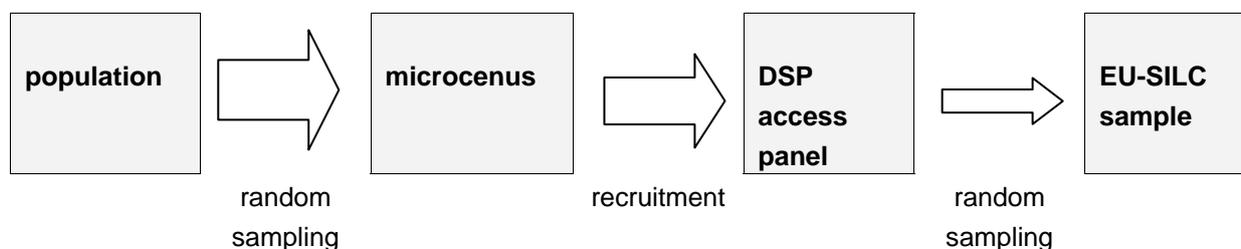
The German SILC survey is designed as a rotational panel (4 sub samples). The longitudinal component of EU-SILC 2006-09 contains 3 rotational groups: (see table 2.1a).

Table 2.1a: Configuration of the German SILC Survey

	Configuration of the German SILC Survey in each survey year			
	Sub sample 1	Sub sample 2	Sub sample 3	Sub sample 4
2006	Quota	Quota	Random	Random
2007	Quota	Random	Random	Random
2008	Random	Random	Random	Random
2009	Random	Random	Random	Random
		Longitudinal part 2008-2009	Longitudinal part 2007-2009	Longitudinal part 2006-2009
		Longitudinal component 2006-2009		

The sample frame for the yearly random sampling of a new sub sample is an access panel (DSP) – containing former participants of the micro census. Figure 2.1a summarises the source of the EU-SILC households in Germany.

Figure 2a: Structure of EU-SILC



Type of sampling design: The sample follows a stratified design.

Sampling units: The sampling population for the whole sample comprises private households in their main residences. All persons aged 14+ in households defined as sample persons (at the time point of the first wave of a sub sample). All sample persons of a household has to be followed-up over time.

Stratification and sub stratification criteria:

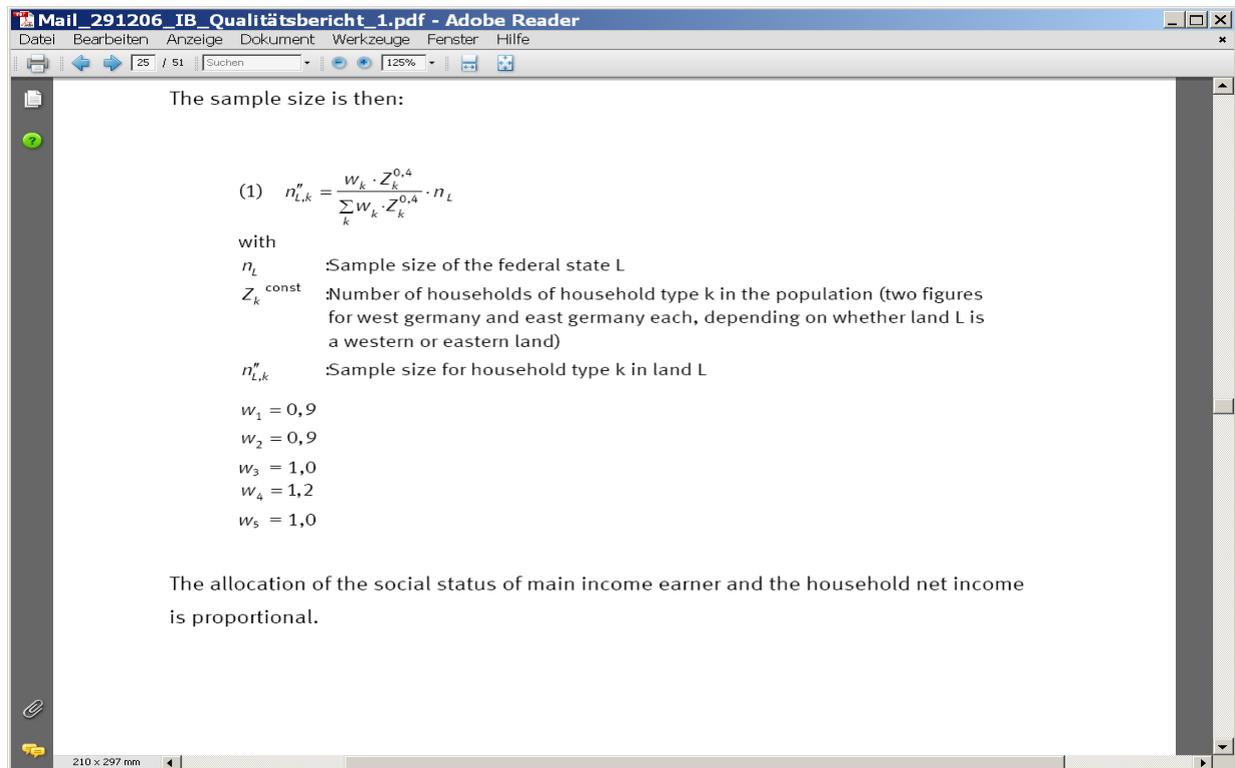
- Land (federal state)
 - o Schleswig-Holstein
 - o Hamburg
 - o Niedersachsen
 - o Bremen
 - o Nord-Rhein-Westfalen
 - o Hessen
 - o Rheinland-Pfalz
 - o Baden-Württemberg
 - o Bayern
 - o Saarland
 - o Berlin – West
 - o Brandenburg
 - o Mecklenburg-Vorpommern
 - o Sachsen
 - o Sachsen-Anhalt
 - o Thüringen
 - o Berlin-Ost
- Household type
 - o One person household
 - o Couple with children
 - o Single parent with at least one child under 18 years and without other persons
 - o Couple with at least one child under 18 years and without other persons
 - o Other households
- Social status of the main income earner
 - o Self employed (except farmers)
 - o Employee
 - o Pensioner
 - o Other not in labour force
- Household net income
 - o EUR < 900
 - o EUR 900 - 1300
 - o EUR 1300 – 2600
 - o EUR 2600 – 3600
 - o EUR 3600 and more
- Farm household (separate stratum for each federal state)

Sample size and allocation criteria: Council Regulation No 1177/2003 specifies the effective sample size for simple random sampling as 8 250 households for the cross sectional component. Taking into account a design factor of 1.3 (that results from the clustered sampling design of the micro census which is the basis of the DSP) would make a net sample size of about 14 000 households. A panel mortality of 10 % per year is assumed.

Table 2.1.4b: Households and persons in the longitudinal component

Longitudinal Sample 2006-09	2006	2007	2008	2009	Total
	n	n	n	n	n
Used addresses	6157	4052	7727	10430	28366
DB120 = 11 addresses successfully contacted	6157	3821	7639	10250	27867
DB135 = 1 Interview accepted for database	4052	3579	6672	9121	23424
Persons	8976	17146	22843	20041	69006
Personal interviews	7480	14169	19032	16722	57403

Sample selection schemes: The allocation by household type is disproportional. Those households with a higher probability of nonresponse will get a higher sampling fraction than household types with a lower probability of nonresponse. The allocation of the social status of main income earner and the household net income is proportional. For every type of household k ($k=1\dots 5$) will be a weight w_k .



Sample distribution over time:

Year		2005	2006	2007	2008	2009
Random sample	Rotational group 4	4100	3690	3321	2989	-
	Replacement in 2006	-	4100	3690	3321	2989
	Replacement in 2007	-	-	4100	3690	3321
	Replacement in 2008	-	-	-	4100	3690
Quota sample	Rotational group 1	2989	-	-	-	-
	Rotational group 2	3321	2989	-	-	-
	Rotational group 3	3690	3321	2989	-	-
Total random net		4100	7790	11111	14100	14100
Total quota		10000	6310	2989	0	0
Total net		14100	14100	14100	14100	14100

Renewal of sample (rotational groups): In 2005 the survey started with 3 quota samples and 1 random sample. In the survey year 2008 the last quota sample was replaced by another random sample (see Figure 2).

Figure 2.1.7a:

struktur of EU-SILC

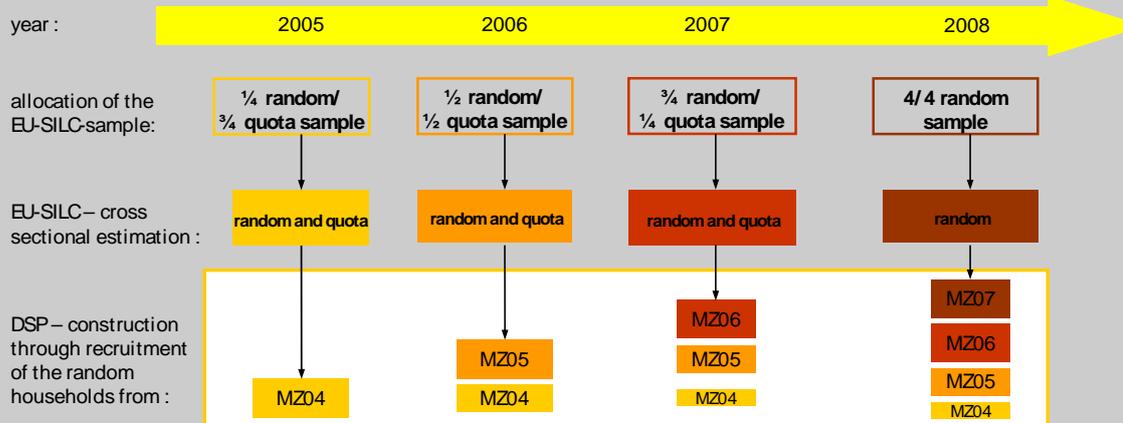


Table 2.1.7a: Addresses and completed interviews in 2006, 2007, 2008 and 2009 by rotational group (R1, R2, R3, R4)

Longitudinal Sample 2006-09	2006	2007	2008	2009	Total
	n	n	n	n	
Used addresses	6157				
R1					
R2	-				
R3	-				
R4					
DB135 = 1 Interview accepted for database	4052	7727	10430	9167	31376
R3	-	-	-	-	-
R2	-	-	3719	3252	6971
R1	-	4119	3533	3103	10755
R4	4052	3608	3178	2812	13650

Weightings:

The general goal of extrapolation is to estimate the parameters (total value, mean value, percentage value, and variance) of the population from the sample, using suitable estimators.

Estimation method: An unbiased estimate of the unknown total value of a specific variable Y is provided by a generalised regression estimator. The linear estimating function for a total value is:

$$\hat{t}_y = \hat{t}_{y,HT} + \hat{\mathbf{B}} \cdot (\mathbf{t}_x - \hat{\mathbf{t}}_{x,HT})$$

Where

$$\hat{t}_{y,HT} = \sum_{k=1}^n \frac{y_k}{\pi_k \hat{\theta}_k} = \sum_{k=1}^n d_k y_k$$

is the expanded total value of the variable Y ("Horvitz-Thompson estimator"). The regression estimator is a linear estimating function and has the quality that the benchmarks are hit when they are extrapolated from the sample.

Taking account of the structure: The complex structure of the permanent sample was taken into account when extrapolating the random households (random sample), i.e. participation of households in the permanent sample and in EU-SILC (participation probabilities) and the fact that households remain in the permanent sample (probabilities of remaining) were included in the extrapolation. See in this context Körner, Nimmergut, Nökel, Rohloff: Die Dauerstichprobe befragungsbereiter Haushalte - Die neue Auswahlgrundlage für freiwillige Haushaltsbefragungen in the periodical *Wirtschaft und Statistik*. Software: The EU-SILC extrapolation was performed through an SAS implementation using the CLAN macro package.

Individual / household weights: Determining the individual / household weights required double calibration, i.e. an adjustment of benchmarks at both the individual level and the household level.

The longitudinal weighting factors were created in line with Eurostat's recommendations: Newborns were assigned their mother's base weight and other co-residents received a base weight of zero.

Design factor: The design factor is calculated as a combination of the following items

- probability to be in the 4th rotational quarter of the micro census
- participation probability to take part in the DSP (estimated by logistic regression)
- probability to remain in the DSP (product of the yearly probability to remain in the DSP that is estimated by logistic regression)
- selection probability for EU-SILC

Non response adjustments –first wave: The basis for the sampling of the random sub samples is the access panel DSP. The structure of the DSP was considered in the weighting the structure.

Adjustments to external data – first wave: The marginal distribution of the micro census was used for the adaptation process. As for the household weights (DB090), we have used the marginal distribution of the following characteristics:

- monthly household net income
- household type
- household size
- age
- sex

and for the personal weights PB040:

- sex
- nationality
- family status
- federal state (Land)
- age

- social status
- education level (not in 2005, but from 2006)
- household type.

Final longitudinal weights: The longitudinal weighting factors were created in line with Eurostat's recommendations: Newborns were assigned their mother's base weight and other co-residents received a base weight of zero.

EU-SILC weighting concept of the cross-sectional files

Dipl. Math. Birgit Horneffer
Statistisches Bundesamt
Gruppe IIA Mathematisch-statistische Methoden
birgit.horneffer@destatis.de

basis of the weighting procedure

- weighting of each rotation group
- weighting of households and household members
- adjustment to results of microcensus
- generalized regression estimator

basis of the weighting procedure

- **general goal of weighting: estimate the parameters (total value, mean value, percentage value, variance) of the population from the sample using suitable estimators**

method of the weighting procedure

- **Weighting factors will be calculated as follow:**

$$w_k = \frac{g_k}{\pi_k \cdot \hat{\theta}_k}$$

w_k : weighting factor for household or household member k

g_k : correction factor for household or household member k

π_k : probability for household or household member k selected for EU-SILC

$\hat{\theta}_k$: estimated factor of the participation probability of EU-SILC for household or household member k

method of the weighting procedure

- π_k = probability for household or household member k selected for EU-SILC
 - determination through the probability to be in the DSP
 - product of
 - probability to be in the rotation quarter of the microcensus
 - probability to take part on the DSP
 - probability to be in the DSP at the survey time point
 - probability of selected for EU-SILC

method of the weighting procedure

- $\hat{\theta}_k$ = estimated factor of the participation probability EU-SILC for household or household member k
 - through logistics regression estimated participation probability
- $\pi_k \cdot \hat{\theta}_k$ = probability in all for household or household member k to be in the survey EU-SILC

method of the weighting procedure

- g_k = correction factor for household or household member k
 - calculation through the adjustment on corner values of the population
 - estimation through generalized regression estimation

method of the weighting procedure

- g_k = correction factor for household or household member k
 - estimation through generalized regression estimation

$$g_k = 1 + (t_x - \hat{t}_{x,HT})' \left(\sum_{k=1}^n \frac{x_k x_k'}{\pi_k \hat{\theta}_k} \right)^{-1} x_k$$

With

x_k : vector of all possibilities of the help characteristics of the household or household member k

t_x : vector of the total values of the help characteristics

method of the weighting procedure

- $\hat{t}_{x,HT}$ = Horvitz-Thomson-estimator

$$\hat{t}_{x,HT} = \sum_{k=1}^n \frac{x_k}{\pi_k \hat{\theta}_k}$$

method of the weighting procedure

- The „Generalized Regression Estimator“ - GREG estimator is the linear estimating function for a total value t_y :

$$\begin{aligned} \hat{t}_y &= \hat{t}_{y,HT} + \hat{\mathbf{B}}' \cdot (\mathbf{t}_x - \hat{\mathbf{t}}_{x,HT}) \\ &= \sum_{k=1}^n \left(1 + (\mathbf{t}_x - \hat{\mathbf{t}}_{x,HT})' \left(\sum_{k=1}^n d_k \mathbf{x}_k \mathbf{x}_k' \right)^{-1} \mathbf{x}_k \right) d_k y_k \\ &= \sum_{k=1}^n g_k d_k y_k = \sum_{k=1}^n w_k y_k \end{aligned}$$

Calibration model of the cross-sectional file

**DB090 (household)/ rb050 all current household
members of any age**

regional level	estimation term
federation	household type (5) household size (5) monthly household net income (6) age (7) sex (2)

weighting EU-SILC 2005 and 2006

4 different weighting factors are produced:

- DB090 (household)
- RB050 (all current household members of any age)
- PB040 (all current household members aged 16 and over)
- RL070 (children born in year N or person aged more than 12 years old at 31/12/N-1)

Calibration model of the cross-sectional file

PB040 (all current household members aged 16 and over)

regional level	estimation term
federation	federal state (17) family status (4) education level (3) social status (4) household type (5)
old land/ new land	age (7) sex (2) nationality (2)

Calibration model of the cross-sectional file

**RL070 (children born in year N or person aged more than
12 years old at 31/12/N-1)**

regional level	estimation term
federation	age (7)
old land/ new land	sex (2)

summary

- every year - weighting of the cross-sectional files
- calibration must be checked
- all requirements of eurostat must be meet

2.2. Sampling errors

See discussion about the calculation program for the calculation of the standard errors (WG Living Condition Meeting May 2010).

Table 2.2a: Mean, total number of observations (before and after imputation) and standard error for income components (households and persons, weighted, cross-sectional 2009)

Income components		No. of observations		Standard error	
	Mean weighted	Before imputations	After imputations	Observations	Standard error
Total income component (weighted by db090)					
HY010	Total gross household income	41146	13043	13081	13081
HY020	Total disposable household income	30736	13013	13086	13086
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	28862	12681	12794	12794
HY023	Total disposable household income before social transfers including old-age and survivors benefits	21259	12460	12714	12714
Gross income components at household level (weighted by db090)					
HY040	Income from rental of property or land	6815	1200	1210	1210
HY050	Family related allowance	3473	4026	4026	4026
HY060	Social exclusion nor elsewhere classified	5193	498	508	508
HY070	Housing allowance	1125	206	206	206
HY080	Regular inter household cash transfer received	4256	896	898	898

HY090	Interests, dividends etc	1011	6462	10916	10916	
HY100	Interests repayment on mortgage					
HY110	Income received by people under 16 years	1678	59	65	65	
HY120	Regular taxes on wealth	339	6551	6597	6597	
HY130	Regular inter household cash transfers paid	3529	1417	1420	1420	
HY140	Tax on income and social contributions	11155	11911	11911	11911	
Gross income components at personal level (weighted by pb040)						
PY010	Employee cash or near cash income	25823	12477	12639	12639	
PY020	Non-cash employee income	3469	657	991	991	
PY035	Contributions to individual private pensions plans	1381	12448	12698	12698	
PY050	Cash benefits or losses from self-employment	29936	1165	1165	1165	
PY070	Value of goods produced for own-consumptions	138	1857	2942	2942	
PY080	Pensions from individual private plans	4546	349	353	353	
PY090	Unemployment benefits	5677	1772	1795	1795	
PY100	Old age benefits	15341	6844	6879	6879	
PY110	Survivor's benefits	6116	337	341	341	
PY120	Sickness benefits	4334	273	273	273	
PY130	Disability benefits	8267	692	701	701	
PY140	Education-related allowances	3706	308	311	311	
Equivalent Disposable Income (weighted by RB050)						
Household Size						
1 person		18312	3926	3959	3959	
2 persons		22540	10906	10958	10958	
3 persons		22397	5100	5127	5127	
4 or more persons		20861	8298	8324	8324	
Age classes						
<25		19617	6850	6881	6881	
25-34		21589	2533	2547	2547	
35-44		23358	4283	4298	4298	
45-54		23503	4545	4572	4572	
55-64		21693	4099	4133	4133	
65 or older		19312	5920	5937	5937	
Sex						
Male		21650	13708	13771	13771	
Female		20814	14522	14597	14597	
Total		21225	28230	28368	28368	

Table 2.2b: Mean, total number of observations (before and after imputation) and standard error for income components (households and persons, weighted, longitudinal part 2006 of the longitudinal sample 2006-09)

Income components	No. of observations			Standard error	
	Mean weighted	Before imputations	After imputations	Observations	Standard error
Total income component (weighted by db090)					

HY010	Total gross household income	39590	3982	4050	4050	
HY020	Total disposable household income	29010	3924	4051	4051	
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	26615	3681	3953	3953	
HY023	Total disposable household income before social transfers including old-age and survivors benefits	19756	3463	3900	3900	
Gross income components at household level (weighted by db090)						
HY040	Income from rental of property or land	7379	384	392	392	
HY050	Family related allowance	3300	1322	1322	1322	
HY060	Social exclusion nor elsewhere classified	6543	183	217	217	
HY070	Housing allowance	1214	109	120	120	
HY080	Regular inter household cash transfer received	4516	322	325	325	
HY090	Interests, dividends etc	1199	1872	3333	3333	
HY100	Interests repayment on mortgage					
HY110	Income received by people under 16 years	3350	23	30	30	
HY120	Regular taxes on wealth	384	1765	1910	1910	
HY130	Regular inter household cash transfers paid	3803	455	462	462	
HY140	Tax on income and social contributions	11330	3332	3608	3608	
Gross income components at personal level (weighted by pb050)						
PY010	Employee cash or near cash income	24190	3535	3742	3742	
PY020	Non-cash employee income					
PY035	Contributions to individual private pensions plans	1083	1874	1908	1908	
PY050	Cash benefits or losses from self-employment	28196	378	426	426	
PY070	Value of goods produced for own-consumptions	173	483	890	890	
PY080	Pensions from individual private plans	4136	82	84	84	
PY090	Unemployment benefits	5883	697	726	726	
PY100	Old age benefits	14670	1990	2070	2070	
PY110	Survivor's benefits	6764	114	125	125	
PY120	Sickness benefits	5853	84	86	86	
PY130	Disability benefits	8744	214	221	221	
PY140	Education-related allowances	2961	117	120	120	
Equivalent Disposable Income (weighted by rb060).						
Household Size						
1 person		18275	1103	1160	1160	
2 persons		20552	3256	3350	3350	

3 persons	20879	1764	1800	1800	
4 or more persons	18807	2617	2666	2666	
Age classes					
<25	18129	2208	2253	2253	
25-34	18985	884	904	904	
35-44	21085	1424	1465	1465	
45-54	22622	1295	1328	1328	
55-64	20454	1301	1349	1349	
65 or older	18460	1628	1677	1677	
Sex					
Male	20269	4226	4336	4336	
Female	19212	4514	4640	4640	
Total	19738	8740	8976	8976	

Table 2.2c: Mean, total number of observations (before and after imputation) and standard error for income components (households and persons, weighted, longitudinal part 2007 of the longitudinal sample 2006-09)

Income components		No. of observations			Standard error	
		No. of observations		Standard error		
	Mean weighted	Before imputations	After imputations	Observations	Standard error	
Total income component (weighted by db090)						
HY010	Total gross household income	40584	7598	7722	7722	
HY020	Total disposable household income	29865	7451	7723	7723	
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	27791	7023	7534	7534	
HY023	Total disposable household income before social transfers including old-age and survivors benefits	20979	6574	7451	7451	
Gross income components at household level (weighted by db090)						
HY040	Income from rental of property or land	6811	714	753	753	
HY050	Family related allowance	3280	2546	2546	2546	
HY060	Social exclusion nor elsewhere classified	5624	347	391	391	
HY070	Housing allowance	1172	157	161	161	
HY080	Regular inter household cash transfer received	4805	598	604	604	
HY090	Interests, dividends etc	1338	3771	6447	6447	
HY100	Interests repayment on mortgage					
HY110	Income received by people under 16 years	2751	38	42	42	
HY120	Regular taxes on wealth	343	3562	3801	3801	
HY130	Regular inter household cash transfers paid	3594	852	859	859	
HY140	Tax on income and social contributions	11633	6311	6881	6881	
Gross income components at personal level (weighted by pb050)						
PY010	Employee cash or near cash income	25057	6735	7186	7186	
PY020	Non-cash employee income	3203	371	620	620	
PY035	Contributions to individual private pensions plans	1140	4096	4152	4152	
PY050	Cash benefits or losses from self-employment	31303	718	793	793	
PY070	Value of goods produced for own-consumptions	168	942	1819	1819	
PY080	Pensions from individual private plans	4445	168	171	171	
PY090	Unemployment benefits	5637	1160	1202	1202	
PY100	Old age benefits	14412	3833	3971	3971	

PY110	Survivor's benefits	6525	185	191	191	
PY120	Sickness benefits	4488	151	157	157	
PY130	Disability benefits	8344	396	404	404	
PY140	Education-related allowances	3563	200	209	209	
Equivalised Disposable Income (weighted by rb060).						
Household Size						
1 person		17944	2134	2254	2254	
2 persons		21508	6176	6360	6360	
3 persons		21818	3270	3375	3375	
4 or more persons		19295	4925	5047	5047	
Age classes						
<25		18559	4225	4333	4333	
25-34		19443	1519	1576	1576	
35-44		22237	2722	2792	2792	
45-54		22820	2459	2574	2574	
55-64		21851	2275	2369	2369	
65 or older		18385	3305	3392	3392	
Sex						
Male		20702	7985	8228	8228	
Female		19832	8520	8808	8808	
Total		20258	16505	17036	17036	

Table 2.2d: Mean, total number of observations (before and after imputation) and standard error for income components (households and persons, weighted, longitudinal part 2008 of the longitudinal sample 2006-09)

Income components		No. of observations		Standard error	
		No. of observations		Standard error	
	Mean weighted	Before imputations	After imputations	Observations	Standard error
Total income component (weighted by db090)					
HY010	Total gross household income	41406	10243	10424	10424
HY020	Total disposable household income	30499	9597	10426	10426
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	28399	9567	10187	10187
HY023	Total disposable household income before social transfers including old-age and survivors benefits	20926	8365	10109	10109
Gross income components at household level (weighted by db090)					
HY040	Income from rental of property or land	7035	969	1000	1000
HY050	Family related allowance	3319	3317	3317	3317
HY060	Social exclusion nor elsewhere classified	5472	477	533	533
HY070	Housing allowance	1102	185	190	190
HY080	Regular inter household cash transfer received	4445	790	797	797
HY090	Interests, dividends etc	1187	5138	8610	8610
HY100	Interests repayment on mortgage				
HY110	Income received by people under 16 years	1557	58	66	66
HY120	Regular taxes on wealth	365	5021	5276	5276
HY130	Regular inter household cash transfers paid	3615	1174	1178	1178
HY140	Tax on income and social contributions	11757	8711	9406	9406
Gross income components at personal level (weighted by pb050)					
PY010	Employee cash or near cash income	26902	9361	9755	9755
PY020	Non-cash employee income	3877	458	783	783
PY035	Contributions to individual private pensions plans	1196	5643	5735	5735
PY050	Cash benefits or losses from self-employment	35426	1000	1073	1073
PY070	Value of goods produced for own-consumptions	146	1281	2241	2241
PY080	Pensions from individual private plans	4044	217	227	227
PY090	Unemployment benefits	6756	1475	1536	1536
PY100	Old age benefits	14811	5359	5464	5464

PY110	Survivor's benefits	6179	264	271	271	
PY120	Sickness benefits	4079	222	224	224	
PY130	Disability benefits	8226	522	538	538	
PY140	Education-related allowances	3105	275	280	280	
Equivalised Disposable Income (weighted by rb060).						
Household Size						
1 person		18123	3027	3134	3134	
2 persons		22247	7996	8660	8660	
3 persons		22026	3861	4392	4392	
4 or more persons		20204	5546	6477	6477	
Age classes						
<25		19099	4916	5563	5563	
25-34		20855	1871	2073	2073	
35-44		22893	3123	3560	3560	
45-54		23235	3097	3545	3545	
55-64		22132	2941	3277	3277	
65 or older		18710	4482	4645	4645	
Sex						
Male		21247	9808	10965	10965	
Female		20428	10622	11698	11698	
Total		20830	20430	22663	22663	

Table 2.2e: Mean, total number of observations (before and after imputation) and standard error for income components (households and persons, weighted, longitudinal part 2009 of the longitudinal sample 2006-09)

Income components		No. of observations		Standard error	
		No. of observations		Standard error	
	Mean weighted	Before imputations	After imputations	Observations	Standard error
Total income component (weighted by db090)					
HY010	Total gross household income	41176	9133	9162	9162
HY020	Total disposable household income	30747	9119	9166	9166
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	28836	8895	8968	8968
HY023	Total disposable household income before social transfers including old-age and survivors benefits	21285	8716	8903	8903
Gross income components at household level (weighted by db090)					
HY040	Income from rental of property or land	6875	863	868	868
HY050	Family related allowance	3435	2770	2770	2770
HY060	Social exclusion nor elsewhere classified	5410	359	366	366
HY070	Housing allowance	1167	152	152	152
HY080	Regular inter household cash transfer received	4195	636	638	638
HY090	Interests, dividends etc	1006	4615	7652	7652
HY100	Interests repayment on mortgage				
HY110	Income received by people under 16 years	1889	40	44	44
HY120	Regular taxes on wealth	346	4591	4624	4624
HY130	Regular inter household cash transfers paid	3559	983	985	985
HY140	Tax on income and social contributions	11159	8330	8330	8330
Gross income components at personal level (weighted by pb050)					
PY010	Employee cash or near cash income	25861	8508	8629	8629
PY020	Non-cash employee income	3510	446	673	673
PY035	Contributions to individual private pensions plans	1384	8734	8890	8890
PY050	Cash benefits or losses from self-employment	30433	858	858	858
PY070	Value of goods produced for own-consumptions	138	1366	2098	2098
PY080	Pensions from individual private plans	4337	257	261	261
PY090	Unemployment benefits	5731	1200	1215	1215
PY100	Old age benefits	15204	5067	5093	5093

PY110	Survivor's benefits	6112	238	241	241	
PY120	Sickness benefits	3944	172	172	172	
PY130	Disability benefits	8331	479	486	486	
PY140	Education-related allowances	3342	225	228	228	
Equivalent Disposable Income (weighted by rb060).						
Household Size						
	1 person	18562	2768	2789	2789	
	2 persons	22521	7712	7748	7748	
	3 persons	22108	3600	3618	3618	
	4 or more persons	20749	5548	5562	5562	
Age classes						
	<25	19654	4612	4633	4633	
	25-34	21754	1666	1673	1673	
	35-44	23504	2916	2928	2928	
	45-54	23383	3142	3156	3156	
	55-64	21630	2860	2884	2884	
	65 or older	18876	4432	4443	4443	
Sex						
	Male	21642	9521	9560	9560	
	Female	20712	10107	10157	10157	
	Total	21168	19628	19717	19717	

2.3. Non-sampling errors

Sampling frame and coverage errors: According to Regulation No 1177/2003, Article 8, 25% of the German EU-SILC sample 2005 was a random sample and 75% was a quota sample. The sampling frame for the random sample is an access panel, the so called permanent sample of households ready to co-operate with official statistics (DSP) that was established in German official statistics in 2004. The households in the DSP are recruited from the German micro census, a highly reliable random sample. The micro census interviewers ask the households of the withdrawn micro census sub sample whether they are interested in further household surveys such as the German SILC survey. Thus, the DSP as a sampling frame is continuously enlarged. In addition, detailed socio-demographic information is available on the DSP participants. The socio-demographic information on all DSP participants is updated yearly (based either on survey participation or on a short DSP questionnaire update). For the quota sample, household addresses from other surveys (i.e. Household Budget Surveys) were asked for a participation in the EU-SILC survey. For both random and quota sample, the sampling population are private households in their main residence.

Measurement and processing errors: The content of the questionnaires is based on the SILC065 document. The survey was carried out as a mail survey. Fieldwork (mailing, checking, data capture) was done by the competent statistical offices of the federal states. The respondents had to complete the questionnaire on their own, with the option to get help from a telephone hotline in the statistical offices. Moreover, the statistical offices of the federal states checked the returned questionnaires concerning item and unit-nonresponse or understanding problems. We check, for example, whether the personal data such as year of birth, gender et cetera, which are contained in the different datasets, are consistent with each other. Particular problems are caused by incorrect data concerning the relationship between persons constituting a household. Very often it emerges that children, for example, have been registered as partners. The registration of deceased persons is a problem, too. Quite often, deceased persons are still registered as household members alive.

Schedule of the checking procedures (non-monetary variables):

- a) checking the content of the variables in the raw data
- b) identifying duplicates in the raw data due to moves between federal states

- c) checking household composition and respondent status of removed households
- d) checking sex and age information
- e) identifying new/new born household members and members who had moved out or died
- f) identifying 'children' in the household
- g) checking relationships between household members
- h) checking the age difference between household members, particularly between children and parents
- i) identifying the partner

The following variables deviate from the EU-SILC target variable definition due to several reasons:

- PB090, HB040: Day of interview is not measured.
- PB120, HB120: Time to complete the questionnaire was top coded and should be understood only as a rough estimation by the respondents, because in mail surveys the respondents can make a break during the fillings- in process.
 - PL015, PI035: Persons in military or civil services are treated as employees in Germany. They get the code (-1) in the majority of employment variables.

Table 2.3.2a: Distribution of proxy interviews by activity status and year (persons interviewed in all three waves)

Activity status (PL030)	Longitudinal Sample 2006-09					
	Personal Interview		Proxy Interview		Total	
	n	In %	n	In %	n	In %
2006						
(1) working	3221	82,8	667	17,2	3888	100
(2) unemployed	369	84,1	70	15,9	439	100
(3) retired	1706	82,8	354	17,2	2060	100
(4) other	835	76,4	258	23,6	1093	100
Total	6131	82,0	1349	18,0	7480	100
2007						
(1) working	5683	81,7	1275	18,3	6958	100
(2) unemployed	712	84,2	134	15,8	846	100
(3) retired	3305	81,2	763	18,8	4068	100
(4) other	1660	72,3	637	27,7	2297	100
Total	11360	80,2	2809	19,8	14169	100
2008						
(1) working	7505	79,7	1912	20,3	9417	100
(2) unemployed	837	84,7	151	15,3	988	100
(3) retired	4533	80,7	1085	19,3	5618	100
(4) other	2147	71,4	862	28,6	3009	100
Total	15022	78,9	4010	21,1	19032	100
2009						
(1) working						
(2) unemployed						
(3) retired						
(4) other						
Total						

Non-response errors:

Table 2.3.3.1a: Sample size and accepted interviews

Longitudinal Sample 2006-09	2006	2007	2008	2009	Total
	n	n	N	n	n
DB135 = 1 Interview accepted for database	4052	7727	10430	9167	31376
R3	-	-	-	-	-
R2	-	-	3719	3252	6971
R1	-	4119	3533	3103	10755
R4	4052	3608	3178	2812	13650
Personal Interview accepted	7480	14169	19032	16722	57403
R3	-	-	-	-	-
R2	-	-	6667	5804	12471
R1	-	7473	6444	5685	19602
R4	7480	6696	5921	5233	25330
Number of persons 16 years or older	7533	14231	19124	16796	57684
R3	-	-	-	-	-
R2	-	-	6714	5838	12552
R1	-	7512	6474	5711	19697
R4	7533	6719	5936	5247	25435
Sample persons	7533	14231	19124	16796	57285
R3	-	-	-	-	-
R2	-	-	6712	5787	12499
R1	-	7508	6397	5635	19540
R4	-	6644	5867	5202	25246
CO-residents	-	79	148	172	399
R3	-	-	-	-	-
R2	-	-	2	51	53
R1	-	4	77	76	157
R4	-	75	69	45	189

Table 2.3.3.2a: Indicators on unit non-response

Longitudinal Sample 2006-09	2006	2007	2008	2009	Total
	n	n	n	n	n
addresses successfully contacted	6157	10424	14305	10533	41419
R3	-	-	-	-	-
R2	-	-	6486	3579	10065
R1	-	6350	4165	3566	14081
R4	6157	4119	3654	3208	17138
Used addresses	6157	10424	14305	10533	41419
R3	-	-	-	-	-
R2	-	-	6486	3579	10065
R1	-	6350	4165	3566	14081
R4	6157	4119	3654	3208	17138
Ra address contact rate %	100	100	100	100	100
R3	-	-	-	-	-
R2	-	-	100	100	100
R1	-	100	100	100	100
R4	100	100	100	100	100
DB135 = 1 Interview accepted for database	4052	7727	10430	9167	31376
R3	-	-	-	-	-
R2	-	-	3719	3252	6971
R1	-	4119	3533	3103	10755
R4	4052	3608	3178	2812	13650
Rh proportion of completed interviews %	65,8	74,1	72,9	87,0	75,6
R3	-	-	-	-	-
R2	-	-	57,3	86,5	69,3
R1	-	64,9	84,8	87,0	76,4
R4	65,8	87,6	87,0	87,7	79,6
NRh HH non-response rate %	34,2	25,9	27,1	13	24,4
R3	-	-	-	-	-
R2	-	-	42,7	13,5	30,7
R1	-	35,1	15,2	13	23,6
R4	34,2	12,4	13	12,3	20,4
Personal Interview accepted	7480	14169	19032	16722	57403
R3	-	-	-	-	-
R2	-	-	6667	5804	12471
R1	-	7473	6444	5685	19602

R4	7480	6696	5921	5233	25330
Number of persons 16 years or older	7533	14231	19124	16796	57684
R3	-	-	-	-	-
R2	-	-	6714	5838	12552
R1	-	7512	6474	5711	19697
R4	7533	6719	5936	5247	25435
Rp Individual Response rate %	99,2	99,5	99,5	99,6	99,5
R3	-	-	-	-	-
R2	-	-	99,3	99,4	99,3
R1	-	99,5	99,5	99,5	99,5
R4	99,2	99,6	99,7	91,6	99,6
NRp Overall Individual Non-Response rate %	0,8	0,5	0,5	0,4	0,5
R3	-	-	-	-	-
R2	-	-	0,7	0,6	0,7
R1	-	0,5	0,5	0,5	0,5
R4	0,8	0,4	0,3	0,4	0,4

Table 2.3.3.2b: Household response rate

Households with an successful interview in 2006	Longitudinal Sample 2006-09 Wave 2007	
	DB110 =1,2,11	
	n	In %
“Contact ratio”: DB120 = 11 (n = 6157)	4052	65,8
“Follow-up ratio”: (DB135 = 1)	3579	58,1
“Refusal ratio”	2578	41,9
DB130 = 11 Household questionnaire completed	3579	58,1
DB130 = 21,22 Refusal to co-operate	268	4,4
DB130 = 23 Unable to respond	0	0
DB130 = 24 Other reasons	197	4,9
Households with an successful	Longitudinal Sample 2006-09 Wave 2008	

interview in 2007	DB110 =1,2	
	n	In %
“Contact ratio”: DB120 = 11 (n = 7727)	7639	98,9
“Follow-up ratio”: (DB135 = 1)	6672	86,3
“Refusal ratio”	1055	13,7
DB130 = 11 Household questionnaire completed	6672	86,3
DB130 = 21,22 Refusal to co- operate	615	8,0
DB130 = 23 Unable to respond	-	-
DB130 = 24 Other reasons	413	5,4
Households with an successful interview in 2008	Longitudinal Sample 2006-09 Wave 2009	
	DB110 =1,2	
“Contact ratio”: DB120 = 11 (n =10430)	10250	98,3
“Follow-up ratio”: (DB135 = 1)	9121	87,4
“Refusal ratio”	1309	12,6
DB130 = 11 Household questionnaire completed	9121	87,7
DB130 = 21,22 Refusal to co- operate	767	7,4
DB130 = 23 Unable to respond	-	-
DB130 = 24 Other reasons	516	5,0

Table 2.3.3.3a: Distribution of households by DB110

Longitudinal sample 2006-09	DB135			
	1	2	-2	Total

2006				
Households	4052	-	2105	6157
In %	65,8	-	34,2	100
DB110 = 8	7	-	28	35
DB110 = 9	4045	-	2077	6122
2007				
Households	7727	-	2697	10424
In %	74,1	-	25,9	100
DB110 = 1	3382	-	439	3821
DB110 = 2	197	-	34	231
DB110 = 8	39	-	48	87
DB110 = 9	4109	-	2176	6285
DB110 = 11	-	-	-	-
2008				
Households	10430	-	3875	14305
In %	72,9	-	27,1	100
DB110 = 1	6618	-	1021	7639
DB110 = 2	54	-	34	88
DB110 = 8	46	-	65	111
DB110 = 9	3712	-	2755	6467
DB110 = 11	-	-	-	-
2009				
Households	9167	-	1366	10533
In %	87,0	-	13,0	100
DB110 = 1	8993	-	1257	10250
DB110 = 2	128	-	52	180
DB110 = 8	46	-	57	103
DB110 = 9	-	-	-	-
DB110 = 11	-	-	-	-

Table 2.3.3.3b: Distribution of households by DB130

DB130	Longitudinal Sample 2006-09									
	2006		2007		2008		2009		Total	
	n	%	n	%	n	%	n	%	n	%
DB130 = 11	4052	65,8	7727	74,4	10430	73,3	9167	87,7	31376	76,1
DB130 = 21	2105	34,2	2458	23,7	3384	23,7	775	7,4	8722	21,1
DB130 = 22	-	-	-	-	-	-	-	-	-	-
DB130 = 23	-	-	-	-	-	-	-	-	-	-
DB130 = 24	-	-	198	1,9	413	2,9	516	4,9	1127	2,7
Total	6157	100	10383	100	14227	100	10458	100	41225	100
(-2)	-	-	41	-	78	-	75	-	194	-
(-1)	-	-	-	-	-	-	-	-	-	-
Total	6157	100	10424	100	14305	100	10533	100	41419	100

Table 2.3.3.4a Distribution of persons by membership status

RB110	Longitudinal Sample 2006-09								
		1	2	3	4	5	6	-1	Total
2006									
Persons	8975	-	1	-	-	-	-	-	8976
In %	100,0	-	-	-	-	-	-	-	100
2007									
Persons	16890	26	88	32	98	12	-	-	17146
In %	98,5	0,2	0,5	0,2	0,6	0,1	-	-	100
2008									
Persons	22369	46	158	90	173	7	-	-	22843
In %	97,9	0,2	0,7	0,4	0,8	0,0	-	-	
2009									
Persons	19339	46	202	130	311	13	-	-	20041
In %	96,5	0,2	1,0	0,6	1,6	0,1	-	-	100

Item-non-response:

Table 2.3.3.5a: Information on item non-response on household level and on individual level

Income components:		Longitudinal sample 2006-09; Part 2006							
		Households having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Total income component:									
HY010	Total gross household income	4050	100,0	1161	28,7	2821	69,7	68	1,7
HY020	Total disposable household income	4051	100,0	1682	41,5	2242	55,3	127	3,1
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	3953	97,6	1573	39,8	2108	53,3	272	6,9
HY023	Total disposable household income before social transfers including old-age and survivors benefits	3900	96,2	1470	37,7	1993	51,1	437	11,2
Gross income components on household level:									
HY040	Income from rental of property or land	392	9,7	384	98,0	0,0	0,0	8	2,0
HY050	Family related allowance	1322	32,6	1314	99,4	8	0,6	0	0,0
HY060	Social exclusion nor elsewhere classified	217	5,4	175	80,6	8	3,7	34	15,7
HY070	Housing allowance	120	3,0	107	89,2	2	1,7	11	9,2
HY080	Regular inter household cash transfer received	325	8,0	320	98,5	2	0,6	3	0,9
HY090	Interests, dividends etc	3333	82,3	681	20,4	1191	35,7	1461	43,8
HY100	Interests repayment on mortgage	0	0,0	0		0		0	
HY110	Income received by people under 16 years	30	0,7	23	76,7	0	0,0	7	23,3
HY120	Regular taxes on wealth	1910	47,1	1765	92,4	0	0,0	145	7,6
HY130	Regular inter household cash transfers paid	462	11,4	441	95,5	14	3,0	7	1,5
HY140	Tax on income and social contributions	3608	89,0	2593	71,9	739	20,5	276	7,6
Gross income components on personal level:									
PY010	Employee cash or near cash income	3742	50,0	3405	91,0	130	3,5	207	5,5
PY020	Non-cash employee income	0	0,0	0		0		0	
PY035	Contributions to individual private pensions plans	1908	25,5	1871	98,1	3	0,2	34	1,8
PY050	Cash benefits or losses from self-employment	426	5,7	351	82,4	27	6,3	48	11,3

PY070	Value of goods produced for own-consumptions	890	11,9	261	29,3	222	24,9	407	45,7
PY080	Pensions from individual private plans	84	1,1	82	97,6	0	0,0	2	2,4
PY090	Unemployment benefits	726	9,7	691	95,2	6	0,8	29	4,0
PY100	Old age benefits	2070	27,7	1974	95,4	16	0,8	80	3,9
PY110	Survivor's benefits	125	1,7	114	91,2	0	0,0	11	8,8
PY120	Sickness benefits	86	1,1	0	0,0	84	97,7	2	2,3
PY130	Disability benefits	221	3,0	214	96,8	0	0,0	7	3,2
PY140	Education-related allowances	120	1,6	117	97,5	0	0,0	3	2,5

Table 2.3.3.5b: Information on item non-response on household level and on individual level

		Longitudinal sample 2006-09; Part 2007							
Income components:		Households having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Total income component:									
HY010	Total gross household income	7722	99,9	2225	28,8	5373	69,6	124	1,6
HY020	Total disposable household income	7723	99,9	3220	41,7	4231	54,8	272	3,5
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	7534	97,5	2985	39,6	4038	53,6	511	6,8
HY023	Total disposable household income before social transfers including old-age and survivors benefits	7451	96,4	2783	37,4	3791	50,9	877	11,8
Gross income components on household level:									
HY040	Income from rental of property or land	753	9,7	714	94,8	0	0,0	39	5,2
HY050	Family related allowance	2546	32,9	2527	99,3	19	0,7	0	0,0
HY060	Social exclusion nor elsewhere classified	391	5,1	336	85,9	11	2,8	44	11,3
HY070	Housing allowance	161	2,1	155	96,3	2	1,2	4	2,5
HY080	Regular inter household cash transfer received	604	7,8	591	97,8	7	1,2	6	1,0
HY090	Interests, dividends etc	6447	83,4	1351	21,0	2420	37,5	2676	41,5
HY100	Interests repayment on mortgage	0	0,0	0		0		0	
HY110	Income received by people under 16 years	42	0,5	38	90,5	0	0,0	4	9,5
HY120	Regular taxes on wealth	3801	49,2	3562	93,7	0	0,0	239	6,3
HY130	Regular inter household cash transfers paid	859	11,1	841	97,9	11	1,3	7	0,8
HY140	Tax on income and social contributions	6881	89,1	4917	71,5	1394	20,3	570	8,3
Gross income components on personal level:									
PY010	Employee cash or near cash income	7186	50,7	6527	90,8	208	2,9	451	6,3
PY020	Non-cash employee income	620	4,4	108		263		249	
PY035	Contributions to individual private pensions plans	4152	29,3	4089	98,5	7	0,2	56	1,3
PY050	Cash benefits or losses from self-employment	793	5,6	668	84,2	50	6,3	75	9,5
PY070	Value of goods produced for own-consumptions	1819	12,8	512	28,1	430	23,6	877	48,2

PY080	Pensions from individual private plans	171	1,2	167	97,7	1	0,6	3	1,8
PY090	Unemployment benefits	1202	8,5	1158	96,3	2	0,2	42	3,5
PY100	Old age benefits	3971	28,0	3806	95,8	27	0,7	138	3,5
PY110	Survivor's benefits	191	1,3	185	96,9	0	0,0	6	3,1
PY120	Sickness benefits	157	1,1	0	0,0	151	96,2	6	3,8
PY130	Disability benefits	404	2,9	395	97,8	1	0,2	8	2,0
PY140	Education-related allowances	209	1,5	200	95,7	0	0,0	9	4,3

Table 2.3.3.5c: Information on item non-response on household level and on individual level

		Longitudinal sample 2006-09; Part 2008							
Income components:		Households having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Total income component:									
HY010	Total gross household income	10424	99,9	2381	22,8	7862	75,4	181	1,7
HY020	Total disposable household income	10426	100,0	2722	26,1	6875	65,9	829	8,0
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	10187	97,7	3638	35,7	5929	58,2	620	6,1
HY023	Total disposable household income before social transfers including old-age and survivors benefits	10109	96,9	3383	33,5	4982	49,3	1744	17,3
Gross income components on household level:									
HY040	Income from rental of property or land	1000	9,6	969	96,9	0	0,0	31	3,1
HY050	Family related allowance	3317	31,8	3301	99,5	16	0,5	0	0,0
HY060	Social exclusion nor elsewhere classified	533	5,1	467	87,6	10	1,9	56	10,5
HY070	Housing allowance	190	1,8	183	96,3	2	1,1	5	2,6
HY080	Regular inter household cash transfer received	797	7,6	783	98,2	7	0,9	7	0,9
HY090	Interests, dividends etc	8610	82,6	1873	21,8	3265	37,9	3472	40,3
HY100	Interests repayment on mortgage	0	0,0	0		0		0	
HY110	Income received by people under 16 years	66	0,6	58	87,9	0	0,0	8	12,1
HY120	Regular taxes on wealth	5276	50,6	5021	95,2	0	0,0	255	4,8
HY130	Regular inter household cash transfers paid	1178	11,3	1156	98,1	18	1,5	4	0,3
HY140	Tax on income and social contributions	9406	90,2	7101	75,5	1479	15,7	695	7,4
Gross income components on personal level:									
PY010	Employee cash or near cash income	9755	51,3	9178	94,1	183	1,9	394	4,0
PY020	Non-cash employee income	783	4,1	291	37,2	167	21,3	325	41,5
PY035	Contributions to individual private pensions plans	5735	30,1	5633	98,2	9	0,2	92	1,6
PY050	Cash benefits or losses from self-employment	1073	5,6	939	87,5	61	5,7	73	6,8
PY070	Value of goods produced for	2241	11,8	785	35,0	496	22,1	960	42,8

	own-consumptions								
PY080	Pensions from individual private plans	227	1,2	217	95,6	0	0,0	10	4,4
PY090	Unemployment benefits	1536	8,1	1471	95,8	4	0,3	61	4,0
PY100	Old age benefits	5464	28,7	5299	97,0	60	1,1	105	1,9
PY110	Survivor's benefits	271	1,4	264	97,4	0	0,0	7	2,6
PY120	Sickness benefits	224	1,2	0	0,0	222	99,1	2	0,9
PY130	Disability benefits	538	2,8	520	96,7	2	0,4	16	3,0
PY140	Education-related allowances	280	1,5	275	98,2	0	0,0	5	1,8

Table 2.3.3.5d: Information on item non-response on household level and on individual level

		Longitudinal sample 2006-09; Part 2009							
Income components:		Households having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Total income component:									
HY010	Total gross household income	9162	99,9	5548	60,6	3585	39,1	29	0,3
HY020	Total disposable household income	9166	100,0	4889	53,3	4230	46,1	47	0,5
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	8968	97,8	4775	53,2	4120	45,9	73	0,8
HY023	Total disposable household income before social transfers including old-age and survivors benefits	8903	97,1	5822	65,4	2894	32,5	187	2,1
Gross income components on household level:									
HY040	Income from rental of property or land	868	9,5	863	99,4	0	0,0	5	0,6
HY050	Family related allowance	2770	30,2	2764	99,8	6	0,2	0	0,0
HY060	Social exclusion nor elsewhere classified	366	4,0	359	98,1	0	0,0	7	1,9
HY070	Housing allowance	152	1,7	152	100,0	0	0,0	0	0,0
HY080	Regular inter household cash transfer received	638	7,0	636	99,7	0	0,0	2	0,3
HY090	Interests. dividends etc	7652	83,5	1748	22,8	2867	37,5	3037	39,7
HY100	Interests repayment on mortgage	0	0,0	0		0		0	
HY110	Income received by people under 16 years	44	0,5	40	90,9	0	0,0	4	9,1
HY120	Regular taxes on wealth	4624	50,4	4591	99,3	0	0,0	33	0,7
HY130	Regular inter household cash transfers paid	985	10,7	983	99,8	0	0,0	2	0,2
HY140	Tax on income and social contributions	8330	90,9	8330	100,0	7	0,1	0	0,0
Gross income components on personal level:									
PY010	Employee cash or near cash income	8629	51,6	8461	98,1	47	0,5	121	1,4
PY020	Non-cash employee income	673	4,0	276	41,0	170	25,3	227	33,7
PY035	Contributions to individual private pensions plans	8890	53,2	8669	97,5	54	0,6	156	1,8
PY050	Cash benefits or losses from self-employment	858	5,1	858	100,0	0	0,0	0	0,0
PY070	Value of goods produced for own-consumptions	2098	12,5	806	38,4	560	26,7	732	34,9
PY080	Pensions from individual private plans	261	1,6	257	98,5	0	0,0	4	1,5
PY090	Unemployment benefits	1215	7,3	1197	98,5	3	0,2	15	1,2

PY100	Old age benefits	5093	30,5	5054	99,2	13	0,3	26	0,5
PY110	Survivor's benefits	241	1,4	238	98,8	0	0,0	3	1,2
PY120	Sickness benefits	172	1,0	0	0,0	172	100,0	0	0,0
PY130	Disability benefits	486	2,9	479	98,6	0	0,0	7	1,4
PY140	Education-related allowances	228	1,4	225	98,7	0	0,0	3	1,3

2.4. Mode of data collection

Table 2.4a Distribution of household members by RB250 and by RB260

Distribution of household members (16+) by ...	Longitudinal sample 2006-09									
	2006		2007		2008		2009		Total	
	n	%	n	%	n	%	n	%	n	%
...by RB250 – all household members (16+)										
RB250 = 11	7480	99,3	14169	99,6	19032	99,5	16722	99,6	57403	99,5
RB250 = 21	3	0,0	3	0,0	4	0,0	3	0,0	13	0,02
RB250 = 22	-	-	54	0,4	76	0,4	65	0,4	195	0,34
RB250 = 23	41	0,5	-	-	-	-	-	-	41	0,07
RB250 = 31	5	0,1	5	0,0	12	0,1	6	0,0	28	0,05
RB250 = 32	4	0,1	-	-	-	-	-	-	4	0,0
Total	7533	100	14231	100	19124	100	16796	100	57684	100
...by RB250 – sample persons (16+)										
RB250 = 11	7479	99,3	14105	99,6	18871	99,6	16403	99,7	56858	99,6
RB250 = 21	3	0,04	3	0,02	4	0,02	3	0,01	13	0,02
RB250 = 22	-	-	47	0,33	61	0,32	40	0,24	148	0,26
RB250 = 23	41	0,54	-	-	-	-	-	-	41	0,07
RB250 = 31	5	0,07	3	0,02	10	0,05	3	0,01	21	0,04
RB250 = 32	4	0,05	-	-	-	-	-	-	4	0,00
Total	7532	100	14158	100	18946	100	16449	100	57085	100
...by RB250 – co-residents (16+)										
RB250 = 11	1	100	64	87,7	161	90,4	319	91,9	545	91,0
RB250 = 21	-	-	-	-	-	-	-	-	-	-
RB250 = 22	-	-	7	9,6	15	8,4	25	7,2	47	7,8
RB250 = 23	-	-	-	-	-	-	-	-	-	-
RB250 = 31	-	-	2	2,7	2	1,12	3	0,9	7	1,2
RB250 = 32	-	-	-	-	-	-	-	-	-	-
Total	1	100	73	100	178	100	347	100	599	100
...by RB260 – all household members (16+)										
RB260 = 1	6131	82,0	11360	80,2	15022	78,9	13184	78,8	45697	79,6
RB260 = 5	1349	18,0	2809	19,8	4010	21,1	3538	21,2	11706	20,4
Total	7408	100	14169	100	19032	100	16722	100	57403	100
...by RB260 – sample persons (16+)										
RB260 = 1	6130	82,0	11315	80,2	14924	79,1	13000	79,3	45369	79,8
RB260 = 5	1349	18,0	2790	19,8	3947	20,9	3403	20,7	11489	20,2
Total	7479	100	14105	100	18871	100	16403	100	56858	100

...by RB260 – co-residents (16+)										
RB260 = 1	1	100	45	70,3	98	60,9	184	57,7	328	60,2
RB260 = 5	-	-	19	29,7	63	39,1	135	42,3	217	39,8
Total	1	100	64	100	161	100	319	100	545	100

2.5. Imputation procedure

The aim of imputing survey data is utilising existing information in order to generate data in such a way like it was available having completely non-missing values. For this purpose we have to exploit existing information overlaps, i.e. we have to assume that the information additionally needed in order to impute missing values can be found elsewhere.

In general three fundamental dimensions of panel data can be identified. These three dimensions of data are also useful to systemise the occurrence of information overlaps within a panel study. In every dimension potentially redundant information does exist and can be exploited for imputation of missing values.

In the first dimension, extraction of information is based on redundancy of items. This means that information is overlapping across a group of correlated variables. In such a case values for a certain variable can be exploited from a set of some other variables which, as a whole, ideally fully explain the variable of interest and its missing values. At second an information overlap can be caused by similarity of cases. In contrast to the redundancy of items, not variables are redundant but elements of population. This means that within the sample there are elements whose characteristics are very similar or even pretty much the same.

The third dimension is considering the role of time within a panel survey. For every single element of the population sample variables are available in the form of time series covering a number of waves. Depending on the persistency of a variable in general there will exist an overlap of information within such a time series. Corresponding to these three dimensions and types of information overlaps the imputation methods used can be described within three main groups.

The first group of deductive methods refers to household and person specific redundancy of items and imputation models are based on logical coherences between auxiliary variables and target variable also considering some external information (e.g. about tax and social protection systems). Method of first choice was net-gross-conversion using regulations for taxes and social contributions. This was applicable for cash employee and self-employed income or pensions with existing data about income related amounts.

There were three types of converting derived income related amounts back to (gross) income. At first net to gross conversion in case that the net amount was available. This was the conversion method most preferable. Social contributions to gross conversion as the second best solution for small incomes since small incomes are tax free. And at third tax to gross 38 conversions as the second best solution for high incomes since social contributions are limited by a maximum amount.

If both, social contributions and tax were available; the maximum amount of both conversions was taken. Besides conversion methods deductive imputation was applied by using regulations for social transfers. This was possible for most types of social transfers like family or housing allowances and often joined by data editing using the same rules.

The second main group of imputation methods used were statistical methods which refer to household or person spanning information due to similarity of cases. Regressions within such groups of similar cases were reflecting statistical coherences between auxiliary variables and target variable specific for different homogenous groups of sample units. Complexity of modelling for this method of imputation was depending on the importance of the imputed values. Therefore several types of statistical imputation were used: Mean ratio imputation was applied to subcomponents proportional to other significant income components, e. g. for additional employee income like thirteenth month.

For major income components where extensive modelling was justified and possible (e.g. for cash employee income without any income data) deterministic regressions were applied using a lot of different models, each based on a different set of similarity variables and, as its whole, guaranteeing preservation of variation based on the differences between the models. For every respondent to be imputed the most homogenous model was chosen by using that one with the highest coefficient of determination. In case of difficulties in finding well fitting models, stochastic regressions with error components were applied (e.g. for inter household transfers).

If necessary, e. g. to avoid unreasonable values due to outliers, also some bounds was added to the regression models in order to introduce minimum or maximum values. The third main kind of imputation methods refers to household and person specific persistency of items. Modelling was based on some household and person specific information from data collected previously and was very similar to the second

group of imputation methods described above. In this first wave this was only applicable for the “household inflation factor” using self-assessed total disposable household income from a previous questionnaire. For further information please see final quality report 2005. The imputation methods for the several income components were in 2005 - 2009 the same.

2.6. Imputed rent

The variable is delivered from 2007 onwards.

2.7. Company cars

For valuation of a company car several figures were used. Respondents were asked in the questionnaire to state the age of the car (year of first registration) and the original market price of the car. For computation of the related non-cash income the average loss in value of cars in Germany was considered as external market information. According to an internal study of the department for consumer prices at the FSO this average loss in value is 16% p.a., whereas mileage is of minor importance (0.1 % p.a.). Therefore mileage, although also available from the questionnaire, was neglected. It may be assumed that such an average loss in value reflects the surplus of wealth in a better way than a car specific loss in value. For example some very expensive cars tend to have very stable market values over time with low losses in value. In these cases computed non-cash income may be lower than by usage of a less expensive car with higher yearly losses in value. For the saved fixed costs in addition a lump sum of 1500 EUR (car insurance, maintenance) was considered. Thus non-cash income due to company car provided for private use is equal to the market value at the beginning of the income reference period minus the market value at the end of income reference period plus 1500 EUR.

[Original market price * 0.84 age of the car - original market price * 0.84 (age of the car + 1) + 1500 EUR]

3. Comparability

3.1. Basic concepts and definitions – for all waves of the longitudinal sample

The reference population is all private households and their current members at their main residence in Germany.

A private household is a person or group of persons living together and sharing their expenditures. Household members are all persons who live at the address of the household for a period of at least 6 months per year or have their main residence there. Household members are persons who work away from home, children in education or children in military or civil service who live in the household only on weekends and have their main residence at the household's address. Subtenants, guests and servants are not considered as household members unless they share all their expenses with the household.

The income reference period is the previous calendar year. The same applies to taxes and social insurance contributions paid on this income. For example, tax repayments received in 2007 are considered as a tax reduction in the income year, they are part of hy140. In Germany, taxes on wealth (hy120) are taxes on real estate, as no other taxes on wealth exist in Germany at present. The reference period for the taxes on real estate is 2007.

The lag between the income reference period and current variables is between 4 and 11 months. The total duration of the data collection of the sample covered the period from April to November.

Basic information on the activity status during the income period was not collected exactly according to Doc. SILC 065/04, but only with minor deviations. An activity calendar was used in our questionnaire. The activity status in our questionnaire was to be based completely on the respondent's self assessment of the main or most important activity in the respective month. Because of the self-administered questionnaire, it was not feasible to give the respondent the complex assessment rules (e.g. when to give priority to work etc.) that are given in Doc. SILC 065/04.

3.2. Components of income

Differences between the national definitions and standard EU-SILC definitions:

Imputed rent: In 2007, 2008 and 2009, DE applied the stratification method as used in the household budget surveys. Calculation basis: Average value of (cold) net rent/qm derived from comparable tenant microcensus households. These average values were calculated – where the three stratification criteria are applied:

1. Region: western Germany, eastern Germany
2. Municipal size: 1 = below 5,000 inhabitants; 2 = 5,000 – 20,000; 3 = 20,000 – 100,000; 4 = 100,000 – 500,000; 5 = 500,000+
3. Year of construction (building): 1 = before 1948; 2, 3 = 1948 – 1990; 4 = after 1990

Income from rental of property or land: - No difference between national definition and standard EU-SILC definition.

Social exclusion payments not elsewhere classified: - In some cases, the variable contains also housing cost benefits (please see the explanation for 'housing allowance').

Housing allowances: The variable does not include all kind of housing allowances, because the local communities inform households, which receive social care allowances 'Grundsicherung bei Erwerbsminderung und im Alter' or 'Sozialhilfe', solely about the total amount of the social care allowance. Thus, these households cannot report separately about the individual part of the transfer and the housing cost part of the transfer. The result of this situation is that the variable 'social exclusion payments not elsewhere classified' contains also housing benefits.

Interest, dividends, and profit from capital investments in unincorporated businesses: - As regards capital income due to necessary simplification for the respondent and unlike the standard EU-SILC definition there was no restriction made to business in which the person does not work. This difference is of minor relevance since, in 2004, only about 2% of the employees in the German sample received profit-sharing payments or stocks from the employer.

Interest paid on mortgages: - Variable was not recorded in the time period 2006 – 2009.

Employers' social insurance contributions: - Variable was not recorded.

Cash profits or losses from self-employment (including royalties): Both methods measuring self-employment income that are recommended by the standard EU-SILC definitions were used in the German questionnaire. Respondents were asked about benefits/losses according to annual accounts and additionally about the yearly amount of money drawn out of their business. Unlike in the standard EU-SILC recommendations the largest amount of the two was taken for calculation of German self-employment income. We think that, given the German tax system, this may in a better way reflect the possibilities of the self-employed to smooth mid-term fluctuations in account benefits contrasting with their more stable potential of wealth. Both amounts were available for all respondents who reported some figures for self-employment income.

Value of goods produced for own consumption: - The value of goods produced for own consumption was, contrary to the preceding year, collected on the household level since for many households, a differentiation between household members was not possible. Where it was possible, the collected value was split according to the persons' share on the household level in the preceding year. If no data was available of the preceding year, the amount was just evenly spread to all household members with a personal questionnaire. Since, in general, it may be assumed that expenses incurred in the production of these goods are of minor

relevance compared to their market value and in order to simplify answering, in difference to the standard EU-SILC definitions respondents were not asked to deduct such costs.

Unemployment benefits: - Unemployment benefits include, depending on the duration of unemployment, up to 7% of the former net employee income as a family allowance for dependent children. As these amounts are not transparent for the respondents, they cannot be split up by them. Therefore all reported amounts were considered as unemployment benefits in difference to the standard EU-SILC definition.

Gross monthly earnings for employees: -Variable was not recorded.

The source or procedure used for the collection of income variables: All income variables were collected by means of household and personal self-administered questionnaires. In cases of substantial incompleteness or implausibility the respondents were phoned by the fieldwork team in order to collect more detailed information.

The form in which income variables at component level have been obtained: Regarding all income variables, respondents were asked for gross values. Only sickness benefits were supposed to be reported as an amount net of taxes and social contributions.

The method used for obtaining income target variables in the required form: In general, the obtained gross income variables were identical with the components and subcomponents of the target variables. In few cases where only net income amounts were available these had to be converted to gross values using all necessary information about the German tax system and social contributions for a recursive algorithm. The non-cash employee income was modelled on the basis of the reported original price of the company car, its age and mileage.

3.3. Tracing rules

For the first survey year of a sub sample no tracing rules were to be applied. For the following years of the sub samples, the tracing rules as laid down in the document EU-SILC 065 were applied.

4. Coherence

Comparison with other longitudinal data is not possible.